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New trends in the development of the lunar physical libration theory

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Abstract

A review of the modern state of the lunar libration theory is presented. A significant progress in the lunar investigation is achieved due to the simultaneous processing of results of the satellite Doppler tracing and of the lunar laser ranging. The data evidencing existence of a small iron core in the Moon are discussed. In this connection, the further development of the theory of rotation of the Moon presents the study of internal structure and dynamics of a lunar body. A model of a two-layer Moon can have a very advanced application to explain some observed phenomena and to be as a first approach in the modelling of internal processes determining the lunar rotation.

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Keywords

Core-mantle boundary, Free core nutation, Lunar core, Lunar rotation, Physical libration